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| 10/823,630      | 04/14/2004  | Michel Armand        | 213411.00032        | 4612             |

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| EXAMINER |
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CHOI, LING SIU

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| ART UNIT | PAPER NUMBER |
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1713

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/823,630

Applicant(s)

ARMAND ET AL.

Examiner

Ling-Siu Choi

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/361,962.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This Office Action is in response to the Response to Restriction Requirement filed July 25, 2006. Claims 1-4 of Group 1 have been elected with traverse. Applicants alleged that "all of the pending claims have the common characteristic of the compounds of formula I.....Accordingly, there appears to be no reason to divide these claims into three different applications." It is noted that the compounds of formula I represents a huge number of compounds ranging from polymers to organic compounds and having different properties and part of compounds represented by the Formula I are not novel. Thus, the patentability of each group does not depend on the compounds of formula I and depend on the combination of the compounds of Formula I and other limitation(s). In conclusion, the restriction is proper and is made as final.

### ***Double Patenting***

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with

Art Unit: 1713

37 CFR 3.73(b).

3. Claim 2 is rejected on the ground of nonstatutory double patenting over claim 1 of U. S. Patent No. 6,743,877 B1 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: claim 2 of the present application encompasses claim 1 of US 6,743,877 B1.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

### ***Claim Objections***

4. Claim 1-2 and 17 is objected to because of the following informalities: (a) **Claim 1**, line 12, "then X" is suggested to be changed to --X--; (b) **Claim 1**, line 15, "substituents oxa, azaor thia; and wherein 2 R<sup>6</sup> groups" is suggested to be changed to -- substituents: oxa, azaor thia; and wherein two R<sup>6</sup> groups--; (c) **Claim 1**, line 19, "0 et p" is suggested to be changed to --0 and p--; (d) **Claim 2**, line 1, "characterised in that it is" is suggested to be changed to --wherein the compound is--; (e) **Claim 2**, line 32, "2R<sup>5</sup>" is suggested to be changed to

Art Unit: 1713

--two R<sup>5</sup>--; (f) **Claim 2**, line 34, "CR<sup>5</sup>;" is suggested to be changed to --CR<sup>5</sup>; or--; (g)

**Claim 4**, line 1, "characterized in they are" is suggested to be changed to --wherein the compounds are--; and (h) **Claim 4**, line 5, "2 et 3 V" is suggested to be changed to --2 and 3.7 V--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

**5. The following is a quotation of the second paragraph of 35 U.S.C. 112:**

**The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

6. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 1**, line 3, "2pM<sup>+</sup>" causes indefiniteness because in order to have neutral compound, the total negative charge should be equal to the total positive charge. Thus, 2p should be replaced by nq.

**Claim 1**, lines 5-6, "M<sup>+</sup>" causes indefiniteness because it represents alkaline-earth cation, a transition metal cation, a rare earth cation, or an organometallic cation, which may not having +1 charge.

**Claim 1**, lines 6-7, the recitation "an organic cation of the "nium" type" causes indefiniteness because the Applicants do not clearly set forth the metes and bounds of the patent protection desired.

Art Unit: 1713

**Claim 1**, line 19, the recitation "q varies between 0 and p" causes indefiniteness because if q is zero, Z is absent from the formula. Under such conditions, there is no charge group exists to balance the positive charge of M because only Z carries the negative charge in the formula.

**Claim 2**, line 21, polymer represented by the second formula does not have charge. Thus, it is not encompassed by Formula I.

### ***Claim Analysis***

Art Unit: 1713

## 7. Summary of Claim 1:

|  |   |
|--|---|
| A redox compound having at least one state of oxidation state represented by the general formula: $\{ - [R_2 - (C=X)_{p-q} - R_1 - Z_q - R_3]_n - \} \{ 2p M^+ \}$ |   |
| X  | O, NCN, or C(CN) <sub>2</sub>   |
| Z  | C-Y <sup>-</sup> or N <sup>-</sup><br>wherein Y represents O, S, NCN, -C(CN) <sub>2</sub> ,<br>with the proviso that when Y is S and n ≤ 4, X is O  |
| R <sub>1</sub>   | <b>absent, O, S, NH, -(C=C)<sub>r</sub>-, -(W=W)<sub>r</sub>-</b><br>W independently CR <sub>6</sub> or N<br>R <sub>6</sub> is H, halogen, CN, or C <sub>1-12</sub> alkyl, C <sub>2-12</sub> alkenyl or C <sub>6-14</sub> aryl optionally having one or more substituents of oxa, aza, or thia; and<br>optionally 2 R <sub>6</sub> groups can be bonded to form a cycle comprising from 3 -7 members;<br>r between 1 and 12 |
| R <sub>2</sub>   | <b>absent, a carbonated divalent radical</b> optionally substituted with aza, oxa, or thia  |
| R <sub>3</sub>   | <b>absent, a carbonated divalent radical</b> optionally substituted with aza, oxa, or thia  |
| wherein two of R <sub>1</sub> , R <sub>2</sub> , and R <sub>3</sub> can be bonded together to form a cycle comprising 3-7 members                                  |   |
| q  | between 0 and p   |
| p  | between 1 and 5   |
| n  | between 1 and 10 <sup>4</sup>   |

**Claim Rejections - 35 USC § 102**

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102

Art Unit: 1713

**that form the basis for the rejections under this section made in this Office**

**action:**

**A person shall be entitled to a patent unless --  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

9. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Shionogi & Co. Ltd. (GB 1,115,335).

Shionogi & Co. Ltd. discloses potassium rhodizonate, which is used in an antidiabetic agent (col. 1, lines 15-26). It is noted that dipotassium rhodizonate reads on the claimed compound. It is noted that Shionogi & Co. Ltd. is silent on the redox properties of these polymers. In view of the compound being identical to the claimed compound, the compound will inherit such redox properties. Thus, the present claims are anticipated by the disclosure of Shionogi & Co. Ltd.

10. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Kotek et al. [Journal of Polymer Science: Polymer Chemistry Edition, **21**, 2837-2841 (1983)].

Kotek et al. disclose the following polymers (page 2838 and 2840):



Art Unit: 1713

It is noted that Kotek et al. are silent on the redox properties of these polymers. In view of these polymer being identical to the claimed polymer, these polymer will inherit such redox properties. Thus, the present claim is anticipated by the disclosure of Kotek et al.

11. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Tsutsumi et al. [Journal of Power Sources, **68**, 735-738 (1997)].

Tsutsumi et al. disclose the following redox polymers (page 735):

Thus, the present claim is anticipated by the disclosure of Tsutsumi et al.

12. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Tsutsumi et al. [Journal of Colloid and Interface Science, **185**, 432-435 (1997)].

Tsutsumi et al. disclose the following redox polymers (page 433):

Art Unit: 1713

Thus, the present claim is anticipated by the disclosure of Tsutsumi et al.

13. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Pletcher et al. [Journal of Polymer Science: Polymer Chemistry Edition, **18**, 643-660 (1980)].

Pletcher et al. disclose poly (1,4-phenylene fumaramide) (657) and poly(1,4-phenylene methylfumaramide) (page 658). It is noted that Pletcher et al. are silent on the redox properties of these polymers. In view of these polymer being identical to the claimed polymer, these polymer will inherit such redox properties. Thus, the present claims are anticipated by the disclosure of Pletcher et al.

14. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Speck (US 5,637,452).

Speck discloses an aqueous reagent comprising elagic acid and a metal ion such as  $\text{Ni}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Cu}^{+}$ , or  $\text{Cu}^{2+}$ , which reads on the metal salt of elagic acid (abstract). It is noted that Speck is silent on the redox properties of this compound. In view of this compound being identical to the claimed compound, this compound will inherit such redox properties. Thus, the present claims are anticipated by the disclosure of Speck.

15. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Fleischer (US 5,512,381).

Fleischer discloses a battery comprising an anode, a catode, and a solid state

Art Unit: 1713

electrolyte between the anode and the cathode, wherein the anode is composed of a material containing a proton-donating aromatic compound, the proton-donating aromatic compound being rhodizonic acid (claim 12). However, Fleischer is silent on the specific voltage required for redox couple. It is noted that the voltage for redox couple is an inherent properties of the compound at the conditions. Thus, the present claim is anticipated by the disclosure of Fleischer.

### ***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



LING-SUI CHOI  
PRIMARY EXAMINER

September 20, 2006.